



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

SCIENCE

A WEEKLY JOURNAL DEVOTED TO THE ADVANCEMENT OF SCIENCE, PUBLISHING THE
OFFICIAL NOTICES AND PROCEEDINGS OF THE AMERICAN ASSOCIATION
FOR THE ADVANCEMENT OF SCIENCE.

EDITORIAL COMMITTEE: S. NEWCOMB, Mathematics; R. S. WOODWARD, Mechanics; E. C. PICKERING, Astronomy; T. C. MENDENHALL, Physics; R. H. THURSTON, Engineering; IRA REMSEN, Chemistry; CHARLES D. WALCOTT, Geology; W. M. DAVIS, Physiography; HENRY F. OSBORN, Paleontology; W. K. BROOKS, C. HART MERRIAM, Zoology; S. H. SCUDDER, Entomology; C. E. BESSEY, N. L. BRITTON, Botany; C. S. MINOT, Embryology, Histology; H. P. BOWDITCH, Physiology; J. S. BILLINGS, Hygiene; WILLIAM H. WELCH, Pathology; J. McKEEN CATTELL, Psychology; J. W. POWELL, Anthropology.

FRIDAY, JULY 11, 1902.

CONTENTS:

<i>American Association for the Advancement of Science:—</i>	
<i>The Pittsburgh Meeting:</i> DR. D. T. MACDOUGAL	41
<i>Applied Botany, Retrospective and Prospective:</i> DR. B. T. GALLOWAY.....	49
<i>Scientific Books:—</i>	
<i>Wolf's Histoire de l'Observatoire de Paris:</i> PROFESSOR GEORGE C. COMSTOCK. <i>Pammel and Weems on the Grasses of Iowa:</i> PROFESSOR W. J. BEAL. <i>Parker and Parker's Practical Zoology:</i> DR. M. A. BIGELOW....	59
<i>Societies and Academies:—</i>	
<i>New York Academy of Sciences, Section of Astronomy, Physics and Chemistry:</i> DR. S. A. MITCHELL.....	63
<i>Scientific Journals and Articles.....</i>	63
<i>Discussion and Correspondence:—</i>	
<i>Force and Energy:</i> PROFESSOR CHARLES S.	

MINOT. <i>Ether Waves from Explosions:</i> PROFESSOR FRANCIS E. NIPHER. <i>Ecology:</i> W. F. GANONG. <i>The European Pond-snail:</i> DR. B. ELLSWORTH CALL. <i>Text-books:</i> J. STANFORD BROWN.....	64
<i>Shorter Articles:—</i>	
<i>A New Meteorite from Kansas:</i> DR. OLIVER C. FARRINGTON. <i>Notes on the Lafayette and Columbia Formations and some of their Botanical Features:</i> ROLAND M. HARPER. <i>Instinct in Song Birds:</i> WILLIAM E. D. SCOTT. <i>A New Short Method of Multiplication:</i> DR. D. N. LEHMER.....	67
<i>Current Notes on Meteorology:—</i>	
<i>Eclipse Meteorology; Rainfall Variations; Notes:</i> PROFESSOR R. DEC. WARD.....	74
<i>Memorial of Haller:</i> PROFESSORS MICHAEL FOSTER and PAUL HEGER.....	75
<i>Scientific Notes and News.....</i>	77
<i>University and Educational News.....</i>	79

MSs. intended for publication and books, etc., intended for review should be sent to the responsible editor, Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

THE fifty-first meeting, held in Pittsburgh, from June 28 to July 3, may be held to be fairly typical of the general development of the Association during the last few years, and as one which goes far toward realizing some of the more serious purposes of the organization.

The total number of members in attendance was 431, which places the meeting far up toward the head of the list, so far as this feature is to be taken into account, and the roll includes an unusual proportion of the worthiest names among American men of science. Especially large attendance in physics, chemistry, mechanics and engineering may be attributed to the opportunity afforded the members of inspecting the great number of manufacturing establishments in and about Pittsburgh, which exhibit some of the most modern and interesting examples of the applications of the branches in question. This feature

of the meeting was most fully exploited by the local committee, about fifty excursions having been arranged, some of which entailed the charter and use of large river steamers for an entire day. The arrangements for the excursions and for the general entertainment of the members were on a larger scale than anything attempted at recent meetings of the Association, the local committee having collected and at its disposal a fund of \$9,000.00 for this purpose. In face of such splendid liberality it must be added, somewhat ungraciously perhaps, that the agreement with the headquarters hotel was so loosely made that exorbitant rates were demanded of those who found it necessary to occupy quarters near the center of business interest of the Association.

A census of the papers read before the several sections and affiliated societies shows that 320 papers and addresses were given, in addition to the various lectures by the presiding officers of these organizations and the other special lectures in the evening sessions, which would probably bring the total up to nearly 350. An analysis of the special papers discloses the fact that their titles were distributed among the separate branches of science as follows:

Mathematics and astronomy.....	24
Physics	59
Physics	45
American Physical Society.....	14
Chemistry	69
Mechanical science and engineering...	23
Geology and geography.....	26
Zoology	28
Botany	79
Section G.....	26
Botanical Club.....	23
Botanical Society of America....	30
Anthropology	30
Social and economic science.....	22

The membership shows a steady increase, the total number at the close of the sessions being about 3,500 (as compared with about 2,800 at the close of the Denver meeting, September 1, 1902), and the financial af-

fairs of the Association are also in a very satisfactory condition. A notable event in this connection was the transfer by the request of the permanent secretary of \$2,000.00 from his funds to the permanent fund in the hands of the treasurer, a result largely due to the skillful business management of the affairs of the Association by the secretary which called out a special vote of thanks by the council.

But little was done in the way of new legislation of importance. A single amendment to article 20 of the Constitution was proposed by which the words 'for one week or longer' are to be omitted. This amendment will come up for action at the next meeting, and would have the effect of allowing meetings of less than a week's duration to be held under the action of the council. This section now reads as a result of an amendment completed at this meeting:

ART. 20. The Association shall hold a public meeting annually, for one week or longer, at such time and place as may be determined by vote of the General Committee, and the preliminary arrangements for each meeting shall be made by the Local Committee, in conjunction with the Permanent Secretary and such other persons as the Council may designate. But if suitable preliminary arrangements cannot be made, the Council may afterward change the time and place appointed by the General Committee, if such change is believed advisable by two thirds of the members present.

As a result of other amendments other portions of the constitution now read as follows:

ART. 9. The officers of the Association shall be elected by ballot by the General Committee from the fellows, and shall consist of a President, a Vice-President from each Section, a Permanent Secretary, a General Secretary, a Secretary of the Council, a Treasurer, and a Secretary of each Section; these, with the exception of the Permanent Secretary, the Treasurer, and the Secretaries of the Sections, shall be elected at each meeting for the following one, and, with the exception of the Treasurer and the Permanent Secretary, shall not be reeligible for the next two meetings. The term of office of the Permanent Secretary, of the

Treasurer, and of the Secretaries of the Sections shall be five years.

ART. 18. The Council shall consist of the Past Presidents, and the Vice-Presidents of the last two meetings, together with the President, the Vice-Presidents, the Permanent Secretary, the General Secretary, the Secretary of the Council, the Secretaries of the Sections, and the Treasurer of the current meeting, of one fellow elected from each Section by ballot on the first day of its meeting, of one fellow elected by each affiliated society, and one additional fellow from each affiliated society having more than twenty-five members who are fellows of the Association, and of nine fellows elected by the Council, three being annually elected for a term of three years, etc., etc.

ART. 23. Immediately on the organization of a Section there shall be a member or fellow elected by ballot after open nomination, who, with the Vice-President and Secretary and the Vice-President and Secretary of the preceding meeting and the members or fellows elected by ballot at the four preceding meetings shall form its Sectional Committee. The Sectional Committees shall have power to fill vacancies in their own numbers. Meetings of the Sections shall not be held at the same time with a General Session. The Sectional Committee may invite distinguished foreign associates present at any meeting to serve as honorary members of said Committee.

By the action of the general committee the next meeting of the Association will be held at Washington, D. C., December 29, 1902, to January 3, 1903, and will be the first held during the newly arranged convocation week as arranged and agreed to by more than fifty of the more prominent American universities. The general committee failed to take the usual step of indicating the probable time and place of the second meeting to follow, the consensus of opinion being that it would be profitable to await the result of the midwinter meeting before a decision is reached as to the desirability of such arrangements in the future.

The following officers were elected for the ensuing year:

President—Dr. Ira Remsen, Johns Hopkins University.

General Secretary—H. B. Ward, University of Nebraska.

Secretary of Council—Ch. Wardell Stiles, of Washington.

Vice-Presidents—Section A, George B. Halsted, Austin, Tex.; B, E. F. Nichols, Dartmouth College, N. H.; C, Charles Baskerville, Chapel Hill, N. C.; D, C. A. Waldo, Purdue University, Lafayette, Ind.; E, W. M. Davis, Harvard; F, C. W. Hargitt, Syracuse, N. Y.; G, F. V. Coville, Washington; H, G. M. Dorsey, Chicago; I, H. T. Newcomb, Philadelphia.

Section Secretaries—Section A, C. S. Howe, Cleveland; B, D. C. Miller, Cleveland; C, H. N. Stokes, Washington; D, A. K. Kingsbury, Worcester, Mass.; E, E. O. Hovey, New York; F, C. Judson Herrick, Granville, O.; G, C. J. Chamberlain, Chicago; H, R. H. Dixon, Cambridge, Mass.; I, Frank H. Hitchcock.

The Permanent Secretary and Treasurer are elected every five years. Dr. L. O. Howard, Washington, continues in the former office, and Professor R. S. Woodward, New York, in the latter.

The increasing number and size of the affiliated societies make it impossible to give at this place a full report of their proceedings. At the request of representatives of the organizations concerned, the American Anthropologic Association and the National Geographic Society were made affiliated societies for the Pittsburgh meeting.

The Botanical Society of America passed a series of resolutions on Monday, June 30, 1902, by which the sum of \$500.00 is set aside from its yearly income, this year and every succeeding year, to be used in making grants in aid of investigations. This measure goes into operation at once, and applications from the members and associates of the Society may be sent to the secretary at any time. The funds of the Botanical Society of America consist of the accumulated dues and interest paid in by the members, and the grants in question probably constitute the only series ever offered in America, the money for which has been contributed wholly by a body of scientific workers alone.

Of the reports of committees, that on the relations of the journal SCIENCE to the Association may be taken to be of the greatest

importance to the general policy of the Association. The report as adopted by the Council is given below :

COMMITTEE ON THE RELATIONS OF THE JOURNAL
SCIENCE WITH THE ASSOCIATION.

This committee is able to report that the arrangement by which SCIENCE is sent to members of the Association appears to be advantageous to the Association and to the advancement and diffusion of science in America. At the beginning of the New York meeting two years ago when the plan was adopted the membership of the Association was 1,721, whereas it is now about 3,450. The permanent secretary states that the money derived from the initiation fees of new members has sufficed to send SCIENCE to all members of the Association for the eighteen months during which the arrangement has been in effect. In order, however, that the finances of the Association may be on a satisfactory basis without depending on the initiation fees of new members, and in order that the publishers of SCIENCE may not lose by the arrangement the membership must be 4,000 and should be 5,000. We recommend that special efforts be made to increase the membership to at least 4,000 at the time of the Washington meeting.

We recommend that we be authorized to renew for the year 1903 the present contract with the Macmillan Company, according to which SCIENCE is sent to all members of the Association in good standing on the payment of \$2 for each member from the funds of the Association.

Professor Simon Newcomb, the chairman of this committee, is abroad, but it is known that he concurs in its recommendations.

(Signed.)

CHARLES S. MINOT,
G. K. GILBERT,
R. S. WOODWARD,
J. McK. CATTELL,
L. O. HOWARD.

The general proceedings of the Association inclusive of action by the council of general interest, but which did not come before the general sessions, are as follows:

The first general session was held in Music Hall, Carnegie Institute, on Monday, June 30, at 10 A.M. with the retiring president, Dr. C. S. Minot, in the chair. After a prayer offered by the Rev. Lemuel Call Barnes, D.D., the retiring president, Dr.

Charles S. Minot, of the Harvard Medical School, introduced the president-elect Professor Asaph Hall, U. S. N., who called on Dr. W. J. Holland, director of the Carnegie Institution and chairman of the local committee. Colonel Samuel H. Church and Colonel George H. Anderson also welcomed the Association to Pittsburgh, and President Hall made a brief reply.

A lecture on 'The Prevention of the Pollution of Streams by Modern Methods of Sewage Treatment' by Dr. Leonard P. Kinneutt, was given in the Music Hall, Carnegie Institute on Monday evening, June 30, and the address of the retiring president, Dr. C. S. Minot, was delivered in the same place on the following evening. Dr. Minot's lecture 'The Problem of Consciousness in its Biological Aspects' was printed in full in the last issue of this Journal. Mr. Robert T. Hill, of the U. S. Geological Survey, gave an illustrated lecture on 'The Recent Disaster in Martinique' in the same place on Thursday evening, July 3, which formed the concluding exercise of the meeting.

In order to facilitate business and shorten the period of necessary attendance of certain members of the council, it was voted by that body that its duties be delegated to an executive committee consisting of the secretaries of the Association and the secretaries of the several sections for the session of the Saturday preceding the week of the meeting in which the program is offered.

The permanent secretary was instructed to express to the secretary of the Smithsonian Institution the appreciation of the Association for his services to science in providing for a table at the Naples Biological Station.

The Washington committee on the election of new members during the interim of council meetings was continued with power.

A message of sympathy was sent to King Edward of England.

Reports by Alexander Macfarlane on quaternions, and by H. B. Newsom on the theory of collineations to Section A, were ordered printed in full in the proceedings. The following resolutions on the American International Archeological Commission, recommended by Section H, were approved and adopted by the Council and ordered printed:

WHEREAS, The Second International American Conference, commonly known as the Pan-American Congress, in session duly assembled in the City of Mexico January 29, 1902, adopted a recommendation to the several American nations participating in the Conference, that an 'American International Archeological Commission' be created;

WHEREAS, The recommendation has been transmitted by the President of the United States to the Congress (Senate Document No. 330 of the 57th Congress, 1st Session), thereby giving the project official status in the United States; and,

WHEREAS, The recommendation is in full accord with the spirit and objects of American science while international agreement in laws relating to antiquities is desirable; therefore,

Resolved, That the American Association for the Advancement of Science heartily concurs in the recommendation of the Second International American Conference.

Resolved Further, That the secretary of the Association send a copy of this Resolution to the Director of the Bureau of American Republics, as an expression of the judgment of the Association.

Adopted by Section H on this July 2, 1902, and recommended to the council for adoption on behalf of the Association.

STEWART CULIN,
Chairman,
HARLAN I. SMITH,
Secretary.

Reports of Standing Committees were presented and ordered printed as below:

Twentieth Annual Report of the committee on Indexing Chemical Literature (will be printed hereafter).

REPORT OF THE COMMITTEE ON THE TEACHING OF ANTHROPOLOGY IN AMERICA.

To the Council of the A. A. A. S.: The Committee on the Teaching of Anthropology in Ameri-

ca beg to report a continuation of correspondence and conferences in the interests of Anthropological teaching. Some of the results of the correspondence are incorporated in a paper by one of the committee (Dr. MacCurdy) entitled 'The Teaching of Anthropology in the United States' published in SCIENCE, January, 1902. During the year a course of lectures was delivered by one of the Committee (the Chairman) in the Free Museum attached to the University of Pennsylvania, pursuant to the purposes of the Committee.

The expenses of the Committee have been inconsiderable and no appropriation was asked. It is recommended that the Committee be continued.

W J MCGEE,
FRANZ BOAS,
W. H. HOLMES.

REPORT OF THE COMMITTEE ON ANTHROPOMETRY.

Anthropometric researches under the auspices of this committee have been continued during the year. Professors Cattell and Boas, members of the committee, and Professors Thorndike and Farrand, fellows of the Association, have during the year made measurements of students entering and graduating from Columbia College, and have made other studies on individual differences. Professor Thorndike has investigated especially the correlation of traits in school children. Mr. Farrington has studied the question as to whether brothers who have attended Columbia University are more alike than those who are not brothers. Mr. Bair and Dr. Wissler are calculating the results of measurements of school children made by Professor Boas. Professor Cattell is collecting data on individual differences, in which 1,000 students of Columbia University, 1,000 of the most eminent men in history and 1,000 scientific men of the United States are being considered.

Progress has been made with the construction of a travelling set of anthropometric instruments, toward which an appropriation of \$50 was made at the Denver meeting of the Association. It is believed that the model of a portable set of instruments would be of value for work in schools, for the study of primitive races, etc. The present set is the property of the Association and is to be used in the first instance in making physical and mental measurements of members. Such measurements were begun at the New York meeting, but they cannot be continued until a portable set of instruments is available and arrangements are made for assistance in carrying out the meas-

urements. The instruments will be ready at the time of the Washington meeting, and an assistant could probably be secured to take the measurements if his travelling expenses were paid. We should be pleased if an appropriation to this committee of \$25 or \$50 could be made for this purpose. An appropriation was made for a series of years by the British Association for its anthropometric laboratory. Our own measurements are more extended than those of the British Association, especially in the direction of mental traits; but it would be interesting to compare the measurements of the members of the British Association with similar measurements of American men of science.

J. MCK. CATTELL,
W J MCGEE,
FRANZ BOAS.

COMMITTEE ON THE STUDY OF BLIND
INVERTEBRATES.

To the Council of the A. A. A. S.: Gentlemen—In behalf of your Committee on the Investigation of Cave Animals, I beg leave to report that the following publications have recently been issued, or will appear before the Washington meeting, in January:

1. An account of the arthropods of the caves of Texas by Carl Jost Ulrich, *Proc. Am. Micr. Society*.
2. An account of the history of the eye of amblyopsis from its appearance to death of the individual by old age.
3. The eyes of Rhineura, *Proc. Washington Acad. Sci.*

During March of the present year, the writer, accompanied by Mr. Oscar Riddle as assistant and interpreter, visited the blind fish caves of western Cuba. A general account of the trip was presented before Section F. The crustacea collected will be described by Mr. W. P. Hay. The eyes of the blind crustaceans and the eyes of the blind fishes, blind lizards, and blind snakes collected will be described by my students and myself.

The expenses of the Cuban trip, amounting to about \$400, have been met in part by an unpended balance of about \$80 from the \$150 heretofore granted by the A. A. A. S., a promise of \$85 for a report on the fishes by the U. S. Fish Commission, and from the sale of specimens. In behalf of the Committee I respectfully request that the Committee be continued and that a grant of \$100 be made to continue the work.

In the absence of the other members of the Committee respectfully submitted by

CARL H. EIGENMANN,
Secretary.

REPORT OF THE COMMITTEE ON THE RELATIONS OF
PLANTS TO CLIMATE.

To the Members of the Council: Gentlemen—The efforts of the Committee have been directed to the development of methods which would secure continuous records of the temperature of the soil, and which would make possible an analysis of the comparative influence of the widely different soil and air temperatures upon the general development, physiology and distribution of plants. The Committee has been so fortunate as to secure the cooperation and interest of Professor Wm. Hallock, of Columbia University, and a thermograph designed by him has been constructed and installed for taking continuous records of soil temperatures. (For description, see *Journal New York Bot. Garden*, July, 1902.) With the invention of this instrument, the Committee now finds itself in a position to study some of the main problems confronting it with much promise of success in the way of valuable results, and asks a further grant of sixty-five dollars to enable it to construct and maintain two additional instruments, and to make other necessary records and experiments. In the absence of the other members of the Committee, Messrs. Trelease and Coulter, this report is submitted with their general approval, and with the unanimous approval of Section G.

Respectfully,
D. T. MACDOUGAL.

Report of the Committee on the Atomic Weight of Thorium. (Will be printed hereafter.)

The following grants were made for the ensuing year:

To the committee on anthropometric measurements.....	\$50.00
To the committee on the investigation of blind invertebrates..	75.00
To the committee on the atomic weight of thorium.....	50.00
To the committee on the relations of plants to climate.....	75.00

By the action of the Council on July 3, 1902, a new committee consisting of W. S. Franklin, D. B. Brace and E. F. Nichols was appointed to which was entrusted in-

vestigations of the velocity of light, and a grant of \$75.00 was made to this committee.

The following members were elected fellows at the sessions of the Council on July 2 and 3, 1902:

Abbott, Charles G., Smithsonian Inst., Washington, D. C.

Abel, John, Jr., Baltimore, Md.

Bain, Samuel M., Knoxville, Tenn.

Ball, Carleton R., Washington, D. C.

Blackmar, Frank Wilson, Lawrence, Kansas.

Caldwell, Otis W., Charleston, Ill.

Chamberlain, Chas. Joseph, Chicago.

Cook, Melville T., Greencastle, Ind.

Coquillet, D. W., Washington, D. C.

Duncan, G. M., New Haven, Conn.

Dunn, Louise B., Barnard College, N. Y. City.

Farrand, Livingston, New York.

Fisher, Irving, New Haven, Conn.

Fletcher, Robt., Hanover, N. H.

Gifford, John C., Ithaca, N. Y.

Goodyear, Wm. H., Brooklyn, N. Y.

Gould, G. M., Phila., Pa.

Grant, U. S., Evanston, Ill.

Gregory, H. E., New Haven, Conn.

Hazen, Tracy E., New York.

Herrmann, Richard, Dubuque, Ia.

Herter, C. A., New York.

Humphrey, Richard L., Phila., Pa.

Jenks, Albert E., Bureau Amer. Ethnology, Washington, D. C.

Jordan, Whitman H., Geneva, New York.

Kearney, Thos. H., Washington, D. C.

Lane, A. C., Lansing, Mich.

Lovett, Edgar Odell, Princeton, N. J.

Luquer, Lea McL., Columbia Univ., New York.

McGuire, Jos. D., Washington, D. C.

McNair, F. W., Houghton, Mich.

Mathews, John A., 4 First Place, Brooklyn, N. Y.

Mills, Wm. C., Ohio State Univ., Columbus, O.

Moseley, Edwin L., Sandusky, O.

Moses, A. J., Columbia Univ., N. Y. City.

Osler, W., Baltimore, Md.

Owen, Charles Lorin, Field Columbian Museum.

Paton, Stewart, Baltimore, Md.

Penfield, S. L., New Haven, Conn.

Piersol, G. A., Phila., Pa.

Powers, LeGrand (Tufts), Washington, D. C.

Pratt, Jos. Hyde, Chapel Hill, N. C.

Richards, Herbert Maule, New York.

Sanford, E. C., Worcester, Mass.

Savage, W. L., New York.

Schlesinger, Frank, Ukiah, Cal.

Schmeckebier, Lawrence F., Washington, D. C.

Schwatt, Isaac Joachim, Philadelphia, Pa.

Seashore, C. E., Iowa City, Ia.

Shattuck, Samuel Walker, Champaign, Ill.

Shaw, Walter R., Stillwater, Oklahoma.

Skinner, Henry, Phila., Pa.

Slichter, Charles S., Madison, Wis.

Small, John K., Bedford Park, N. Y. City.

Sneath, E. H., New Haven, Conn.

Spalding, Volney M., Ann Arbor, Mich.

Stanton, T. W., U. S. Nat'l Museum, Washington, D. C.

Stone, Geo. E., Amherst, Mass.

Tatlock, John, Jr., New York City.

Taylor, E. W., Boston, Mass.

Thompson, Alton H., 721 Kansas Ave., Topeka, Kansas.

Thompson, N. Gilman, New York.

Titchener, E. B., Ithaca, N. Y.

Tooker, Wm. Wallace, Sag Harbor, N. Y.

Towle, Wm. Mason, Syracuse, N. Y.

Townsend, Chas. O., Washington, D. C.

Tucker, Rich'd Hawley, Mt. Hamilton, Cal.

Updegraff, Milton, Washington, D. C.

Ward, Robt. DeC., Cambridge, Mass.

Wilder, B. G., Ithaca, N. Y.

Williston, S. W., Univ. of Chicago.

Wood, T. D., New York.

Woods, F. A., Boston, Mass.

As a result of action taken by the Council, Section D and the general session on July 3, 1902, Mr. George Westinghouse was elected an honorary fellow of the Association.

The following report by the Permanent Secretary was received and adopted:

FINANCIAL REPORT OF THE PERMANENT SECRETARY JANUARY 1 TO DECEMBER 31, 1901.

Debit.

To Balance from last account.	\$4,741.46
Admission fees 1900.....	15.00
Admission fees for 1901.....	5,765.00
Annual dues for 1902.....	5,034.00
Annual dues for 1901.....	7,874.00
Annual dues for previous years	774.00
Associate fees.....	123.00
Fellowship fees.....	398.00
Life membership fees.....	1,050.00
Publications	68.29
Binding	23.66
Interest	38.20
Miscellaneous receipts.....	210.44

\$26,115.05

Credit.

By publications.....	\$6,548.07
By expenses Denver meeting..	739.16
By expenses in propagandist work	1,819.90
By general office expenses....	635.09
By salaries.....	2,000.00
By miscellaneous disburse- ments*	2,087.00
By balance to new account...	12,285.83
	<u>\$26,115.05</u>

I hereby certify that I have examined this account and that it is correctly cast and properly vouched for, and that the balance was on deposit in Washington banks as follows: Citizens' National Bank (January 2, 1902), \$9,955.62; National Safe Deposit and Trust Co. (including interest credited, January 1), \$1,274.85; American Security and Trust Co. (including interest credited January 6), \$1,055.36; in all, \$12,285.83.

G. K. GILBERT,
Auditor.

The following report by the Treasurer was received and adopted:

REPORT OF THE TREASURER.

In compliance with Article 15 of the Constitution, and by direction of the Council, I have the honor to submit the following report, showing receipts, disbursements, and disposition of funds of the Association for the year ending December 31, 1901.

Receipts have come into the keeping of the Treasurer from three sources, namely: First, from commutations of annual fees of life members of the Association; secondly, from excess of receipts over expenditures of the Permanent Secretary; and, thirdly, from interests on funds deposited in savings banks. The aggregate of these receipts is \$2,397.89.

Disbursements made in accordance with the direction of the Council amount to \$460.00.

The total amount of funds of the Association deposited in banks and subject to the order of the Treasurer, December 31, 1901, is \$12,127.07.

The details of receipts, disbursements, and disposition of funds are shown in the following itemized statement.

Dated June 1, 1902.

* This includes \$2,050 turned over to the Treasurer to be added to the permanent funds of the Association.

THE TREASURER IN ACCOUNT WITH THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Dr.

1901.	To balance from last account..	\$10,189.18
Dec. 7,	to amount transferred from funds of permanent Secretary	1,000.00
Dec. 14,	to amount received for 21 life memberships	1,050.00
Dec. 31,	to amount received as interest on funds deposited in Savings Bank as follows:	
	From Cambridge Savings Bank, Cambridge, Mass.....	\$36.96
	From Emigrant Industrial Savings Bank, New York, N. Y....	102.08
	From Institution for the Savings of Merchants' Clerks, New York, N. Y.....	99.50
	From Metropolitan Savings Bank, New York, N. Y.....	109.35
		<u>347.89</u>
	Total	\$12,587.07

THE TREASURER IN ACCOUNT WITH THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Cr.

1901.		
Apr. 30,	by amount paid to permanent Secretary from contribution of Mrs. Phoebe Thorne to New York Committee.....	\$200.00
Aug. 29,	by cash paid D. T. MacDougal of committee on study of relations of plants to climate.	60.00
Aug. 29,	by cash paid Jas. McK. Cattell of committee on anthropometric investigations.....	50.00
Oct. 4,	by cash paid Charles B. Davenport of committee on the study of biological variations	100.00
Nov. 11,	by cash paid Charles Baskerville of committee on the study of the atomic weight of thorium.....	50.00
Nov. 31,	by cash on deposit in banks as follows:	

In Cambridge Sav- ings Bank, Cam- bridge, Mass.....	\$1,084.32
In Immigrant In- dustrial Savings Bank, New York, N. Y.....	2,882.93
In Institution for the Savings of Merchants' Clerks, New York, N. Y.	2,918.47
In Metropolitan Savings Bank, New York, N. Y.	2,999.15
In The Fifth Ave- nue Bank, New York, N. Y.....	2,242.20
	<hr/>
	12,127.07
Total	\$12,587.07

I have examined the foregoing account and certify that it is correctly cast and properly vouched.

EMORY MCCLINTOCK,
Auditor.

June 23, 1902.

The chief feature of the closing session of the Association in the Music Hall of the Carnegie Institute on Thursday evening, July 3, was an illustrated lecture by Mr. Robert T. Hill on the recent volcanic eruptions in Martinique, in which the chief features of his recent investigations were described. After the lecture a series of resolutions were passed expressing the thanks of the Association to the various persons and organizations in Pittsburgh concerned in the organization of the meetings and entertainment of the members.

D. T. MACDOUGAL,
General Secretary, A. A. A. S.
NEW YORK, July 5, 1902.

APPLIED BOTANY, RETROSPECTIVE AND PROSPECTIVE.*

It has been the general practice in past years for the retiring Vice-President of this

* Vice-presidential address before the Section of Botany, American Association for the Advancement of Science. Pittsburgh meeting, June 28 to July 3, 1902.

Section to give a summary of the results accomplished in research work, and to point out the lines along which there appears promise of further advancement. The facts set forth in these addresses and the opportunities pointed out in them have proved of great advantage to all, especially the younger men, who draw their inspiration from what has been accomplished in the past and what the future holds forth. In choosing my subject, I have deviated somewhat from the usual practice heretofore followed, not because I have anything particularly new to say or any particularly startling facts to disclose, but rather for the reason that it seems desirable at this time to emphasize some of the things that appeal to us as possibly having a marked influence on the future development of botanical work. To one who is necessarily thrown in contact with the somewhat hurly-burly affairs of life, the old meaning of botanical work is gradually giving way to something else—something that reaches out into practical affairs and pushes its way into paths where, a few years ago, the botanist would have feared to tread.

Now the question arises, is botanical science to suffer by this movement, or is it, after the first preliminary efforts, to emerge rehabilitated, stronger and more vital than ever before? I have neither fear nor doubt as to the outcome, and believe that the spirit which has made us commercially a leader of nations will enable us to build up a science which neither time nor change can seriously affect. It hardly needs any extended statement to call to mind the rapid changes which have taken place in botanical work and botanical thought during the past twenty years, yet a critical study of these changes is, to me, one of the most hopeful signs that our progress has constantly been in the direction of a stronger place in the world's usefulness and a higher plane of scientific thought. Twenty